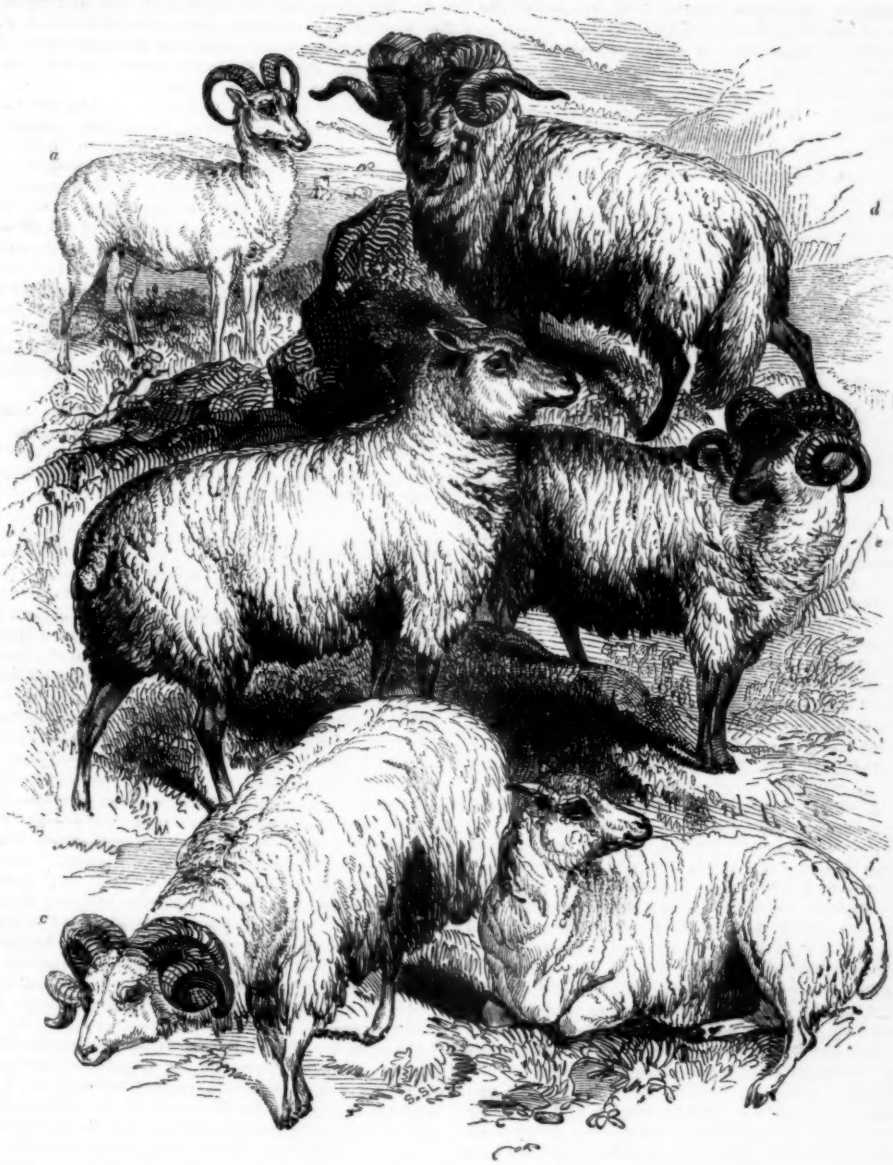


[*a*, Welsh Sheep; *b*, South-Down Sheep; *c*, Dorset Sheep; *d*, Black-faced Cheviot Sheep; *e*, Norfolk Sheep; *f*, Ryland Sheep.]

Mr. Youatt, speaking of an Argali which died at the gardens of the Zoological Society, says, that "being then confined with illness, I requested a very intelligent and observant friend to examine the proportion of wool which grew among the hair. He reported there was not a particle of wool. The author was surprised at this, as the Argali was described as having a winter coat, at least, of fine woolly down; and he sent and requested a small portion of the pelt. The hair was long and coarse enough, but at its base was an exceedingly small quantity of crisped wool. There was so little of it, that it could scarcely be detected on the pelt, but was clearly seen when a lock of hair was cut off close to the skin and held up to the light. This goes far to explain the accounts that have been occasionally given of perfectly hairy (domestic) sheep." Here then we find Mr. Youatt regarding the ordinary clothing of these Argalis and Mouflons as hair, and the fine undercoat as wool, contrary to the opinion of Mr. Bell; and to judge from the analogy presented by wool-bearing animals in general, as the beaver, the otter, the hare, &c., which have an outer garment of smooth hair and an inner one of wool, we incline, notwithstanding the appearances noticed by Mr. Bell, to the general opinion. Be this as it may, excepting on the face, ears, and limbs, which are covered with true hair, the ordinary domestic sheep of Europe are wool-clad; this wool, however, in the more neglected breeds, being more or less mixed with long hairs, the lingering remains, so to speak, of their primitive clothing.

The causes which have rendered the fleece of the European sheep what we now find it, are involved in doubt; judging from what is usual, one would think that shelter and warmth would tend to the removal of such a clothing, and to the substitution of a lighter and cooler material. But such is not the case; witness the Merino sheep of Spain, originally imported from England, and the flocks of Australia and Southern Africa. Supposing the fleece of the primitive sheep to be composed of hair and wool, it seems clear that the shepherds in the early ages of man's history must have selected for breeding those individuals on which, from some cause or other, the wool predominated, the quantity of hair being smaller than usual; and that by others following up this plan, the sheep gradually attained to its present condition, a wool-bearing breed being at length permanently established. This was perhaps sooner effected than we might suppose: we know, indeed, that at a very early period wool was used in the manufacturing of various articles; at first, as may be concluded, by the simple process of felting, afterwards by spinning and weaving. Originally, it cannot be doubted, the sheep, then a wool-bearer and long domesticated, was of a brown or rusty-black colour, a hue still lingering on the faces and limbs of many of our breeds, and sometimes distinguishing individuals amidst a carefully-bred flock, by being their general colour; and thus they exhibit a constitutional tendency to return to their wild origin.

As the primitive fleece of the sheep was a mixture of hair and wool, we cannot be surprised to find races domesticated in which the hair predominates over the wool, and that often so greatly, that they may with propriety be termed hairy. Sometimes this hair is like that of a spaniel dog, long and silky: many of the flocks of the Bucharian Tartars are thus clothed: sometimes, as in varieties of the Guinea sheep, it is coarse and shaggy. Sir Joseph Banks is said to have imported three sheep from Spain, "which were as smooth and sleek as a horse, and which never showed the least sign of wool or down, even in the most minute quantity." Dr. Anderson (in 'American Philos. Trans.,' vol. iv., p. 149) states that on visiting a Danish East Indiaman which put into Leith Roads on her return home, he found on board "a very fine sheep, which was covered with a close coat of thick short hair, very smooth and sleek, like the coat of a well-dressed horse, but the hairs rather stiffer, and thicker set on the skin; the colour a fine nut-brown. It was told me that it was brought from the island of Madagascar, and that all the sheep found in the island were of the same sort." The fat-rumped Persian sheep which we have seen are covered with short coarse wool mixed with hair.

Confining our observations to the sheep of our own island, so important a source of wealth and industry, we may remind the reader that we possess several different breeds, distinguished by different qualities both as it regards form and the characters of the wool: these breeds or varieties are the result of skilful treatment, of pasturage, and of judicious crossings. We may divide them into three groups, the short-woolled, the middle-woolled, and the long-woolled breeds.

The short-woolled breed formerly included many varieties, now, from the improvement of their fleece, to be ranked under the second division, as the South-Down, Norfolk, and Cheviot sheep. It is at present, however, represented by the Anglo-Merino race, to which the sheep of New Holland and Van Diemen's Land also belong. The average length of the wool is about two inches and a half, and its texture is peculiarly fine, soft, and even silky. Short wool is used in the manufacture of delicate and beautiful fabrics; it is, however, generally mixed with wool of a longer staple. The Saxony wool, so valued for its fineness, comes under the present division; it is shorter and finer than the Australian wool, but less silky, the serrations of the fibre being more numerous, and disposing it to felt more closely. Hence Saxony wool is the most valuable in the manufacture of fine broad-cloth.

The average weight of the fleece of the Australian short-woolled sheep is from three pounds to three and a half, sometimes it amounts to five. "There is no wool," says Mr. Hughes, "which spins so well as the Australian;" large importations are annually sent to the British market, at an average of 2*s.* 6*d.* per pound. In 1833 the quantity imported from New South Wales and Van Diemen's Land amounted to 3,516,869 pounds.

It has been the object of the British sheep-farmer to convert the short-woolled breeds into a race with wool which, while its length is increased, preserves its original fineness and delicacy. Thus we have now, in place of the old short-woolled breeds, a middle-woolled race, of great value, and of which the fleece is in the highest request. The cut at the head of the present article gives as examples of this middle-woolled race, the Welsh mountain-sheep, the black-faced of Scotland, the Norfolk and the Dorset breeds, with the South-Down and Ryland.

EXHIBITIONS OF MECHANISM AND MANUFACTURED PRODUCTS.

THE POLYTECHNIC INSTITUTION.

We recently offered a few remarks on the nature and objects of the Museum belonging to the Society of Arts. On the present occasion our attention will be directed to the mechanical and manufacturing departments of the Polytechnic Institution.

This Institution, which holds its meetings in Regent Street, is a joint-stock undertaking, established a few years ago, for the purpose of "educating the eye" in matters of science and art, and of "affording to the inquirer the means of obtaining a general knowledge of the processes by which the wonders of art and manufacture are produced." These objects are carried out by various means, among which are lectures on chemical and scientific subjects, the exhibition of models of machinery, and specimens to illustrate the progress of manufactures. It is to the two latter of these features that our remarks will principally apply. The exhibition of machinery and models is not a gratuitous one; but a visitor may, in the course of an hour's visit, "educate the eye" to an extent fully adequate to the charge made.

On entering the building from Regent Street, we find ourselves in the "Hall of Manufactures," a room about forty feet square, occupied in rather a miscellaneous manner. At the right-hand side are lathes and turning-engines of various kinds, the action of which is explained to any inquiring visitor by the attendants. Near these are two specimens of looms; one, the old Dutch machine, and the other a modern power-loom worked by steam. At these looms a weaver is generally at work; and as the action of the machines can be minutely inspected, the nature of the weaving process can be learned much more quickly by an inspection of them than by reading any description. Ingenious working models of braiding and twisting machines, set in action occasionally during the day, show the manner in which many small haberdashery wares are manufactured. In our Supplement on the glass-manufacture, we had occasion to allude to the tenacity and ductility of glass in a melted state: these qualities may be witnessed by watching the operations of a glass-blower in the hall; the articles which he manufactures are, it is true, mere toys; but the processes are nearly the same in principle.

There are other objects in this hall, but none that call for notice here except a steam-engine. This engine, situated at the north-west corner of the hall, is, though small, of elegant construction; but the point for which we mention it is to show how well it illustrates the communication of mechanical power from one part of a building to another. In most of our great manufactories, machinery, placed in different and often widely separated apartments, is set in motion by one engine; and the mode in which this motion is transferred from place to place is beautifully shown in the instance before us. A fly-wheel attached to the engine acts as a reservoir of mechanical power, which, by means of endless bands passing over wheels, of shafts, and of toothed-wheels, is communicated to a very large number of models in the Great Hall, an apartment several yards from the steam-engine.

Into this great hall, a room about a hundred and twenty feet long, we next pass; and, abstracting our attention from the mere elegancies or ornamental articles deposited there, we shall notice the objects belonging more particularly to the manufacturing arts. There is one feature which we look upon as of considerable importance, viz. series of specimens illustrative of the different stages through which an article passes in the progress of manufacture: a feature which might, we think, be advantageously carried out to a much greater extent. These specimens are not placed so prominently before the view of the visitor as they ought to be; and it is probable that many persons pass by them without knowing their nature or object. One series illustrates the porcelain manufacture: specimens of the clays and earths in their crude form; afterwards in their mixed form; a plate made from them; the same plate printed in blue colours, but not glazed; the materials of which vitrifiable glaze are formed; a plate after it has been glazed; porcelain before and after it has been glazed. Specimens illustrative of the hat-manufacture: wool and fur in their simple states; the same combined into a triangular 'batt;' the batt felted into a conical cap; the cap in a state of transition to the form of a hat; and finally, a hat in its blocked shape. Another series illustrates the manufacture of fine cutlery: the crude iron; the modified appearances which it afterwards presents; the manufactured steel; the shapes into which it is cut; and the finished razor produced therefrom. The 'glass' illustrations are incomplete, for they consist only of manufactured articles, beautiful, it is true, but not illustrating the stages of manufacture: there ought to be specimens of the sand, the alkali, and the oxide of lead, in their simple states; then in their mixed state; then fused into a mass; and lastly, in the state just previous to working. One glass-case contains specimens of woven and twisted fabrics of brass, iron, and copper wire; and another, of similar articles made from the fibres of the cocoa-nut; both of which are interesting, as showing how extensively a *thread* of any substance, whether vegetable or mineral, may be worked up into a useful form. Another series illustrates the production of useful articles from caoutchouc, or India-rubber: the gum is here shown in all its various states, from the time it is formed on the tree, through its various stages—sometimes a solution, and at others a thread—until it assumes one of a numerous variety of forms. We repeat our opinion that this department might be made one of the most valuable in the exhibition, by extending the series, and by labelling every specimen in a conspicuous and readable manner.

Models of steam-engines are placed near the entrance to this hall, most of them being, to a partial extent, set in action by power brought from the acting steam-engine in the entrance-hall. Near here, also, is one of Mr. Hall's hydraulic belts, machines intended to drain marshes and fens, by drawing up water through the suction or absorptive agency of a belt or web: the model here exhibited draws up water to the height of twenty or thirty feet, by the vertical motion of an endless belt, dipping into water below. Numerous specimens of agricultural implements, garden-engines, fire-escapes, carriages, mangles, and other machines lie around in various places. Occasionally we meet with an odd juxtaposition of objects,—a model of the Venetian Bucentaure, with a steam-engine boiler on one side, and a box of preserved mutton, brought by Captain Ross from the wreck of the Fury, on the other; but these are discrepancies which may be overlooked.

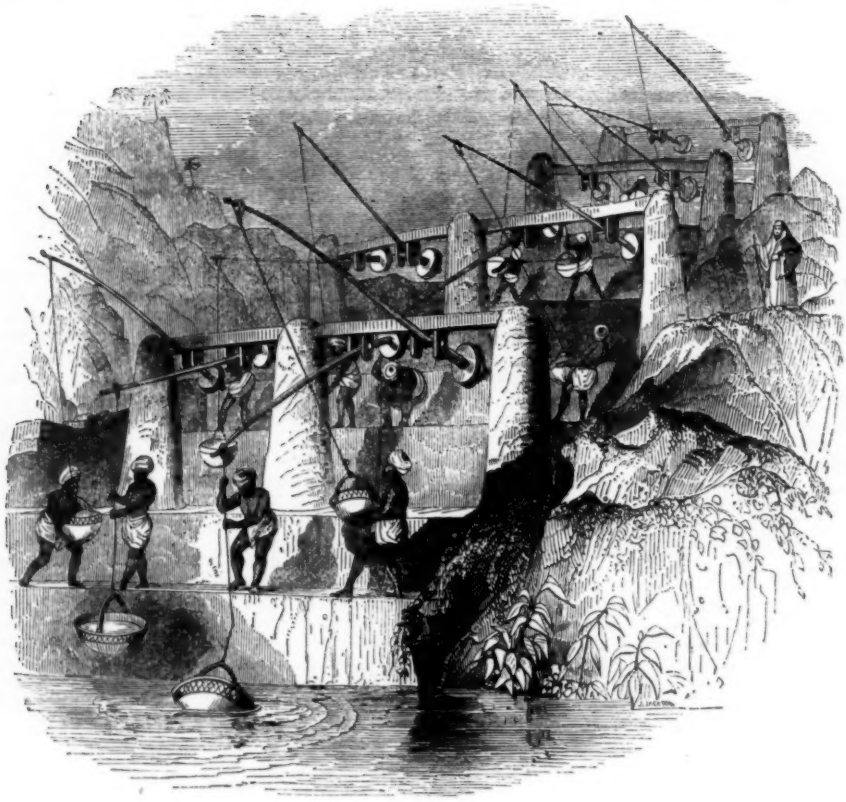
The diving-bell is one of the "lions" of the place, and is certainly an excellent way of illustrating the law of pneumatics relating to the pressure of air. A little philosophy will suffice to show the visitor the action of this machine:—As the bell descends into the water, the air within it becomes pressed into a smaller space, but still it continues to occupy a certain portion of room which the water cannot reach; and the living inmate, though exposed to air of great density, is untouched by the water. An air-pump is employed to force a constant supply of fresh air into the bell, to replace that which is contaminated by respiration.

The reservoir of water into which the bell descends is also the scene of operation of a man who, clothed in a water-tight dress, remains below the surface of the water several minutes, and manages a piece of apparatus intended to illustrate the raising of sunken ships by electrical agency. But, confining ourselves more particularly to pieces of mechanism, we may allude to a small coining-press, showing the method of coining at the Mint. The press, however, is too far from the eye to make its mode of action clear to persons unacquainted with it. On different parts of two canals running on either side of this coining-press are various models of ships, boats, paddle-wheels, propellers, locks, dams, and other specimens of hydraulic engineering. Building-docks, dry-docks, launching-slips, piers, &c. are also among the objects represented by models.

In one part of the building is a machine which is principally interesting as showing how easily people are sometimes deceived, when they are ignorant of the principles of physical science. Time was when all the world went to *see* the "Invisible Girl;" but there she lies—or rather the wooden representative of her—almost unnoticed. The "Invisible Girl" is an acoustical deception, which once brought a harvest to its proprietor; but it is now placed in this exhibition with the very proper view of explaining away the apparent magic, and pointing out the manner—by no means deficient in ingenuity—in which it acted.

There is one glass-case in the Gallery which is somewhat important. It contains specimens of all the strata bored through in sinking a well near London to a great depth. The specimens are ranged in the order in which they occurred, and form a useful index to the nature of the subsoil on which London is built. Numerous other specimens, derived from various quarters, and illustrative of various geological features, are distributed in glass-cases round the room.

A pneumatic telegraph, an anemometer, a rain-gauge; an orrery, intended to show, as far as such mechanism can do, the relative sizes of the planetary bodies; and various other machines, more or less belonging to the mechanical sciences, are to be found in considerable number; but to them we have not space particularly to allude, nor to such small matters as the "self-acting candle-extinguisher," &c. Our object has been to speak of those departments of the exhibition which illustrate the progress of arts and manufactures in an instructive and interesting form.



[Modern Shadoofs.]

IRRIGATION IN THE EAST.

Artificial irrigation, as a means of promoting the fertility of the soil, is comparatively but little attended to in our agricultural system. The moistness of the climate and the frequent showers dropping fatness upon the land, will sufficiently account for this neglect, though it is probable that these natural advantages are not for the future likely to preclude that attention to the subject of artificial irrigation which it deserves.* The rich water-meadows on the banks of some of our rivers afford proofs of the utility and profit which result from irrigation, if conducted according to the rules dictated by experience or science. The meadows on the Wiltshire Avon, for instance, which are so remarkable for their productiveness, are on a bed of shingle and pebbles matted together by the roots of the grass, and if they were not fertilised by the water of the river being judiciously made to flow over them, they would be as barren as Bagshot Heath. The agriculturalist who has paid attention to chemistry and botanical physiology knows that water is the most essential element of vegetation, and that neither the seed can germinate nor the plant receive nourishment without moisture. In warm climates, when the periodical rains occur, even the desert becomes blooming and covered with verdure; but soon after they have ceased, the constant evaporation soon drys up the moisture, and it again assumes its arid and lifeless appearance. The warmer the climate, and the more rapid the evaporation, the more luxuriant is the vegetation, provided there be an abundant supply of water.* Our agriculturalists who emigrate to New South Wales and Australia would find it advantageous to study the agriculture of those regions which have an analogous climate to that of New South Wales, as they will then learn something of those processes which the experience of ages has proved to be suitable to the circumstance of their new country, and thus be able to counteract its great defects,—aridity, and the deficiency of rivers and streams. "It seems (says the writer of the article 'Irrigation,' in the 'Cyclopædia') that where there is great heat in the air, water alone will supply the necessary food for the growth of plants. It is probable that the component parts of the atmosphere are more easily separated, and made to enter into new combinations with those of water, in a high temperature, than in a lower; or that the leaves and green parts of vegetables imbibe water in a state of solution in air, and that in this state it is more easily decomposed. Atmospheric air and water contain all the principal elements of vegetables, namely, oxygen, hydrogen,

* In vol. i., p. 359, of the 'Journal of the Agricultural Society of England,' there is an account of the Duke of Portland's Water-meadows at Clipstone Park, by J. Evelyn Denison, Esq. The land occupied by these meadows was at one time partly a rabbit-warren, over which a few sheep wandered, and a swamp haunted by wild ducks and snipes; but, chiefly by means of irrigation, the produce is now very great, "exceeding all anticipation."

* 'Penny Cyclopædia,' art. 'Irrigation.'

carbon, and nitrogen: the remainder are either found in the soil or diffused through the water. Manures seem to act principally as stimulants or re-agents, and are themselves composed of the same elements." To these principles, therefore, are to be referred the importance of irrigation in all dry and hot countries, where no expense is spared to obtain a supply of water, and ingenuity is taxed to the utmost to distribute it over as large an area as possible, for beyond the limits of irrigation the soil is comparatively unproductive.

Egypt, Syria, and Western Asia, where rain is discontinued throughout the summer, and where, in consequence of that and of the extreme heat, all the smaller streams are dried up, will furnish us with the most antient practices of irrigation, and they are those which still prevail in those countries.

When the water was near at hand, as in a reservoir upon the grounds, the plan was sufficiently simple, and the sculptures of antient Egypt contain figures of men with a yoke upon their shoulders bearing water-pots. When the river is high, or the banks low, two men are employed to raise the water by their united action, in a single vessel (called *ckutweh*). They stand opposite each other on the different banks, and holding a vessel by ropes, they let it descend into the water, and on its being filled raise it to the surface, and pour the contents into a trench which conducts it to the gardens or other grounds where it is required.

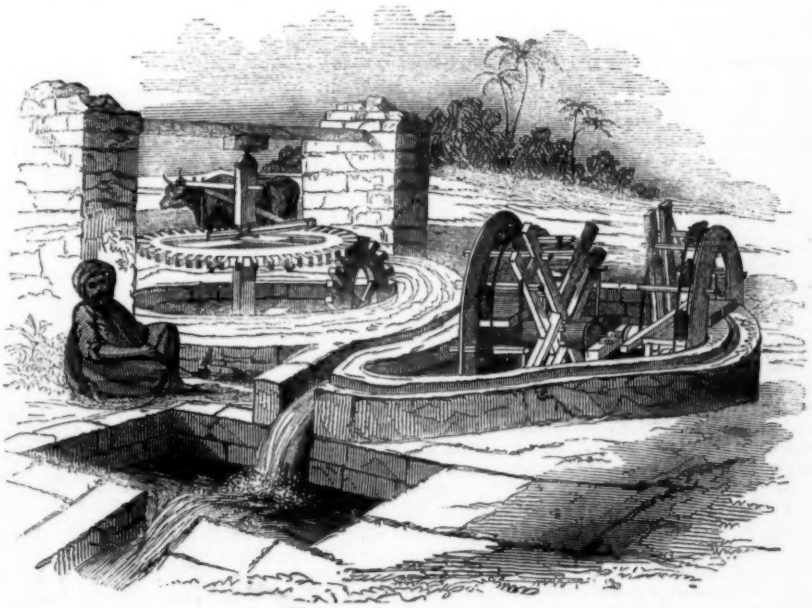
It is, however, in such cases, more usual to raise the bucket by means of the *Shadoof*, which is the most common and simple of the machines used in the East for raising water, whether from rivers or from wells. It is thus described by Mr. Lane:—"It consists of two posts or pillars of wood, or of mud and canes or rushes, about five feet in height, and less than three feet apart, with a horizontal piece extending from top to top, to which is suspended a slender lever, formed of a branch of a tree, having at one end a weight chiefly composed of mud, and at the other, suspended from two long palm-sticks, a vessel in the form of a bowl, made of basket-work, or of a hoop and piece of woollen stuff or leather: with this vessel the water is thrown up to the height of about eight feet, into a trough hollowed out for its reception.* This mode of raising water is sculptured on the monuments of antient Egypt.

When the river is too low, or its banks too high for shadoofs on the same level to raise the water to the surface of the soil, a series of four or five shadoofs is rendered necessary. The water is then raised from the river by shadoofs, and discharged into a trench, from which it is taken by other shadoofs, and discharged into another trench above, and so on from trench to trench, as represented in the cut, until it is raised to the level of the fields.

Another machine, much used for the same purpose as the shadoof, not only on the banks of the Nile, but on those of the Euphrates, Tigris, and all the principal rivers of Western Asia, is the *Sackiyeh*, and which is usually in all cases called 'the Persian Wheel,' in which country it is very largely employed for the irrigation of gardens and other cultivated grounds. The example exhibited in the cut is one of the most perfect of the kind, being used for the irrigation of the gardens of one of the old beys, on the banks of the canal by which Cairo is traversed. The following is Mr. Lane's description of this machine:—The Sackiyeh "mainly consists of a vertical wheel, which raises the water in earthen-pots attached to cords, and forming a continuous series; a second vertical wheel fixed to the same axis with cogs; and a large horizontal cogged wheel, which, being turned by a pair of cows or bullocks, or by a single beast, puts in motion the two former wheels and the pots. The construction of the machine is usually of a very rude kind; and its motion produces a disagreeable croaking noise."† The revolution of the wheels takes down the string of buckets on one side, and brings them up full on the other. On reaching the top, they are reverted by the continued action of the wheel, and pour forth their contents into a trough which conducts it to a reservoir, whence it is distributed in rills over the garden. It is by the wheel and string of buckets that water is usually raised from

* 'Modern Egyptians,' vol. ii., p. 24.

† Ibid., ii., p. 25.



The Sackiyeh, or Persian Wheel.]

wells in Syria, although the shadoof is sometimes employed. A contrivance similar to the shadoof is occasionally used for wells in some parts of Great Britain, and may be frequently seen in the north and east of Europe, and in the United States of America and in Canada.

There is another machine used for the irrigation of lands, when it is only necessary to raise the water a few feet. This is called the *Taboot*, and Mr. Lane describes it as somewhat resembling the sackiyeh, "the chief difference being that, instead of the wheel with pots, it has a large wheel with hollow jaunts, or fellies, in which the water is raised."

Grounds requiring to be artificially watered are divided into small squares by ridges of earth or by furrows: and the water, flowing from the machine or cistern into a narrow gutter, is admitted into one square or furrow after another by the gardener, who is always ready, as occasion requires, to stop and direct the torrent, by turning the earth against it with his foot, and opening at the same time with his mattock a new trench to receive it. This mode of distributing water over a land rarely refreshed with rain is more than once alluded to in the Scriptures; and indeed a distinction is founded upon it between Egypt and the Land of Canaan (*Deut.*, xi. 10, 11).

THE ROAD AND TRAVELLING IN THE OLDEN TIME.

FROM Southampton, on the southern coast of England, the traveller may now proceed by railway as far northward as Lancaster or Darlington, the railway lines from Rugby being continued to the latter place, and those from Birmingham to the former one. Thus, in the space of a summer's day we may traverse over parts of England which once constituted the independent Saxon kingdoms of Wessex, Essex, Mercia, and Northumbria, but which, partly by reason of improved means of communication, have become so united in interest and national feeling as to be comparable only to the individualization of a single mind. While such rapid changes in the facilities of intercourse are going on, it may be interesting as well as useful to glance backward to the locomotive facilities of former times.

For several years previous to the opening of the great lines of railway our system of travelling had reached perfection. Neither skill, nor capital, nor enterprise could render it more admirable. The excellence of the roads, the quality and training of the horses, and the division of labour carried to its greatest efficacy, could alone enable the public of Edinburgh or Glasgow to calculate the arrival of the mails to a few minutes after a journey of four hundred miles performed in forty-two hours, including stoppages, which were necessarily limited to the shortest possible space of time. The 'long stages' and the mails, which, to the number of sixty or seventy, daily travelled along the great highways, and imparted so much animation to the small country town, no longer rattle along its streets or dash through the villages, and greater must be the contrast on account of the suddenness with which they have now vanished. Even the small village road-side inn grew into importance, and while 'changing horses,' passengers entered it for a moment to partake of the comforts for which it had a more than local reputation. Perhaps the palmiest time for inns was in the days of "merry England," when the roads were so thoroughly bad as to be impracticable or nearly so for wheel-carriages, and journeys were performed on horseback. Judges of assize, the learned members of the bar, and their clerks rode the circuit. Churchmen, from right reverend prelates to sleek and well-fed abbots with the humbler lay-brothers of their order proceeded in picturesque array, attended by their sumptuary animals with their "chappell and wardrobe stuff." Of the abbot, in Chaucer, it is said—

> "Full many a daintie horse had he in stable;
> And when he rode, men might his bridle hear,
> Gingeling in a whistling wind as clear,
> And eke as loud, as doth the chapell bell."

Gentle dames and fair damsels took the road on their palfreys. Chaucer's 'Wife of Bath' is spoken of as

> "Girt with a pair of sporres sharpe,
> Upon an ambler easily she sat."

Then there was the court making progresses from one royal manor or castle to another, or meeting parliaments at York, Leicester, Lincoln, and other ancient towns; also the nobles removing to and from their different castles, or travelling up to London to court with their trains of attendants; and the single horseman riding a distance of a hundred miles or more to London or elsewhere with a letter, before posts were established, would join these parties, whose numbers would be swelled by dealers and others going to the different fairs to buy and sell, and by companies of pilgrims riding to some favourite shrine. The roads were not therefore so dull in those days.

The arrival of a numerous company at the 'hostelrie' where they were to spend the night would occasion preparations very different from those which were required when the mailcoach-passengers of later times alighted and were allowed twenty minutes or half an hour for supper, after which they were again hurried on to their destination. The inns of the olden time must have been extensive establishments, combining within themselves the means of comfort and abundance if not of luxury. Harrison, who wrote in the time of Queen Elizabeth, says—"Our inns are very well furnished with naperie, bedding, and tapisterie, especiallie with naperie." Of the host of these days Sir Walter Scott has given us a description in the opening chapter of 'Kenilworth:'—'The guests," he says, "were in some sort not merely the inmates but the messmates and temporary companions of mine host, who was usually a personage of privileged freedom, comely presence, and good humour." The guests themselves were men of weight, rank, and influence, and the host rose into a position of increased dignity by entertaining them. He would derive some importance too from his acquaintance with the news of the country obtained from the travellers who lodged with him, or refreshed themselves at his house during their journey; and with the opportunities which his situation afforded for studying life and character, we may easily believe that not a little shrewdness and humour would be mingled with the joviality of his calling. After riding all day, the guests also would be disposed to give the rein to cheerfulness and merriment under circumstances so well calculated to excite hospitable feelings and sympathy in individuals even of the least genial nature. Although we have quoted Harrison's encomium, yet there is a passage in one of the letters of the Earl of Shrewsbury, written in 1582, which shows that in his journey from Winfield Manor-house, near Alfreton, to London, he was accompanied by carriages which contained "bedding" for himself and "pallets for some of his folks;" but this may be explained by the largeness of his retinue. "I thynke," says he, addressing his agent, "my company will be xx gentylmen and xx yemen, besides their men and my horse-keepers. I thynke to set forwards, about the 11th of September, from Wynfield to Lester to my bedde, and so make but four days' journey

to London." The railroad will now convey a traveller from London to within half a mile of the ruined manor-house at Winfield in about seven hours. Sixty years before, namely in 1526, Henry Clifford, Earl of Cumberland, rode from Skipton to London, with thirty-three servants, at an expense of 7*l.* 15*s.* 1*d.* The earls of Northumberland, in the same age (1512), when they removed from Alnwick to Wressle, or any of their other castles, appear to have been accompanied by thirty-six horsemen, and no less than seventeen vehicles or long waggons filled with household things. They carried with them to their different places of residence bedding, hangings, and furniture, leaving the walls of the one which they had just left bare, as the arras was equally required to conceal the nakedness of that to which they were proceeding. One of the vehicles is termed, in the 'Northumberland Household Book,' a 'chariot,' but it was simply a large waggon drawn by six or seven large 'trotting horses,' the chariotmen riding on a nag by the side.

Above a century later (1640), we find the wife of Henry, the last Earl of Cumberland, journeying from London to Landesborough, with thirty-two horsemen in her train, the cavalcade being eleven days on the road; but prices had altered, and the costs of the journey amounted to 68*l.* 18*s.* In the privy-purse expenses of the Le Stranges, an ancient family settled at Hunstanton in Norfolk, where they had a manor, and which is about 113 miles from London, there are various entries which show the cost of travelling. On August 15th, 1520, four of their servants rode on horseback into Staffordshire. On the first day the cost of their dinners at Lynn was 7*d.*, and for "horsemete there" 5*d.* They arrived at Wisbeach to supper, for which they paid 1*s.* 1*d.*, and for breakfast next morning 4*d.*, the cost of their horses being 1*s.* 4*d.* For one man, the "costs in ryding to London" and back to Hunstanton were 6*s.* 2*d.* He paid 2*d.* for his dinner each day, and 2*d.* for his supper, and performed the journey in three days. The baiting of his horse for the night was 10*d.*, at Newmarket (a large sum), 6*d.* at Ware, in going, and 8*d.* on his return. For "horsemete" in London on Sunday night, Monday, and until Tuesday at noon, he paid 1*s.*, and his own expenses were 11*d.* At Brandon Ferry he paid one penny for "dryncke:" ale was 1*d.* a quart. The accounts of another journey "to Londonward, the Fryday after Seynt Peter," commence with the following entry:—"Imp. at Castleacre for dryncke, 1*d.*" The two following entries show that it was no uncommon thing to send a man from Hunstanton to London with a letter. Thus Lady Le Strange makes an entry of 9*s.* 3*d.* "for cost of riding up to London with a letter to my son Nycholas;" and there is an entry by a servant of 7*s.* 6*d.* for costs of riding to the same place "with your letter for Mr. Southell;" Richard Le Strange's expenses for "riding to the Prior of Lewes" were 26*s.* 8*d.*; a servant is paid 7*s.* as his "costs ryding to the abbot of Welbeck, Nottynghamsyre;" and another 5*s.* "when he rode into Warwyckshire for grehounds." In a journey made to London by one of the Le Stranges, in 1520, the accounts kept by one of the attendants contain the following items, under the head of "Rewards to Londonward:"—"Item, to a mynstrell at Newmarket, 4*d.*; to a harmyte between Barkwaye and Ware, 1*d.*; to a freer at Ware, 2*d.* These "hermits" occupied cells, and haunted the public roads, and the "freers" had begging licences, but they seem to have been in no great repute at this time, judging from the sums they obtained. In the household expenses of another family, under the dates of 1572 and 1574, we find, in the expenses of a journey to London, the sum of 4*d.* paid "amongst the poor folk by the way;" and 1*s.* "to the blind harper at Ware." Ware seems to have been a very musical place in those times, as, in a similar journey, in 1574, the sum of 3*s.* was paid "to the musicians at Ware."

From thirty to fifty miles seems to have been the usual rate of a day's journey on horseback during the 16th century. In one instance the journey from London to Hunstanton (113 miles) is performed in two days. The travellers dined at Newmarket, and lodged at Barkway, and on the second day dined at Ware, and supped in London. When the state of the roads is considered, this rate of travelling was very rapid. Two centuries later, namely, in 1739, the great North Road north of Grantham is described as consisting of a narrow paved causeway for horses, with an unmade road on each side of it. The paved part of the road was traversed by strings of pack-horses thirty or forty in number, the foremost carrying a bell, to give warning to travellers, who were compelled to leave the causeway to allow them to pass.

Our ancestors must have been men of greater powers of bodily endurance than the present generation, to have been capable of undergoing, as they were accustomed to do, a journey on horseback along such roads from Glasgow or Edinburgh to London. In the thirteenth century, when the roads were doubtless in a still worse condition than they were five centuries afterwards, the number of miles travelled in a day's journey was also much greater than would have been thought possible. From 'A Table of the Movements of the Court of John, King of England, from his Coronation on the 27th of May, 1199, to the end of his reign in 1216,' prepared with great industry, by Mr. Hardy, of the Record Office in the Tower, it appears "that the court very constantly travelled between thirty-five and forty miles a day, and on particular occasions a distance of fifty miles was traversed." In one year King John changed his residence one hundred and fifty times, visiting religious houses and his castles and manors, in some cases consuming in kind the rents due to the crown, and in others impoverishing the country by the rapacity of his purveyors. Suitors were necessarily compelled to follow the progress of the court. In 1566, the messenger dispatched from Edinburgh with the intelligence of the birth of a young prince (afterwards James I.) reached London on the fourth day.

Thoresby, the Yorkshire antiquary, has given, in his 'Diary,' a minute account of a "London journey," on which he set out on horseback, in company with his friend Alderman Miller of Leeds, on the 27th of December, 1708. On the first day they reached Barnby Moor, a distance of forty-one miles, and he piously ejaculates, "Blessed be God, we found the ways much better than expectation."

On the 28th the travellers "found some of the ways very bad," especially near Tuxford, "where the ice breaking in, it was both troublesome and dangerous." They escaped what Thoresby terms "several imminent dangers," which he enumerates, first, "in passing the Trent, which we were forced to ferry over, as also over several meadows, and ride over others for above a mile together, very deep to the saddle skirts frequently, and dangerous, especially upon a long causeway, which the guide was forced to plumb every step, because, if we had slipped off upon either side, we had been plunged in a considerable depth of waters." They lodged this evening at Grantham (thirty-eight miles), where he had a Scotch physician, also travelling to London, as his "chamber-fellow."

On the 29th they again set forward, but snow having fallen in the night, they only reached Stamford, a distance of twenty-two miles. In this part of the road Thoresby notices with gratitude the number of 'horsing stones, each of three steps,' placed by the road-side for the convenience of travellers by a benevolent in-

dividual whose name he records. On the 30th and 31st of December, and 1st and 2nd January, the travellers were weather-bound at Stamford.

On the 3rd of January, "having the encouragement of some of the Scotch gentry, who must of necessity be at the parliament at the time appointed, we ventured upon our journey, being fourteen in company," and though their guide refused to proceed on account of the state the roads were in, yet they reached Huntingdon in safety, a distance of twenty-seven miles.

On the 4th the travellers proceeded through Royston to Puckeridge, "where we lodged comfortably." On the 5th Thoresby and his friend "overtook the Scotch posters and got before them to London, though at Enfield had the misfortune to be plunged almost belly deep, by the breaking in of the ice, that the water run in at my pockets and stained my papers." Thoresby spent the evening with a friend in the Temple after this journey of ten days (now performed in as many hours), and which, not reckoning the four days at Stamford, occupied six days constant travelling.

On Monday, February 14, Thoresby and the Aldermen began their journey from London to Leeds, "in company with some Hull gentlemen." They "baited at Ware and reached Royston in good time," being thirty-seven miles. Next day they began their journey "by six in a cold morning," and reached Stamford in good time, having accomplished forty-eight miles. On the 16th they "rose very early." The roads in some places were "rougher than a ploughed field," and "the ice breaking, we were often forced to dismount." They reached Leeds on Friday, having been five days on the road.

The practice of taking long journeys on horseback continued until the roads had become so much improved that the public conveyances were enabled to outstrip the horseman, and then economy of time as well as money decided the public in their favour. There appear to have been some public conveyances established in the sixteenth century. Stow speaks of them as "long wagons," afterwards called "caravans," and says that they usually carried twenty or twenty-five passengers. The gentry and persons of consideration frequently travelled by them, taking with them their servants, plate, &c. Sir William Dugdale notices in his 'Diary,' in 1660, that his "daughter went towards London by waggon." On the 2nd of May, 1659, he himself "set forwards toward London by Coventre *coach*," probably a lighter vehicle than the 'waggon.' The slowness of travelling is noticed by several writers of this period. Anthony à Wood had never visited London until he was thirty-five years old, but in 1666 he set out from Oxford by coach, and was two days travelling to town. A coach was afterwards established by which the journey between these two places was performed in thirteen hours in the summer season, but according to a notice dated 1692, the time occupied in winter still continued to be two days.

Thoresby's 'Diary' contains an account of several of his 'London journeys' by coach. On August 26th, 1712, he left London for Leeds by coach, and passed over Enfield Chace, "which yet abounds with deer," then by Barnet and Hatfield to Welwyn, "a town of good inns," and Stevenage, where they spent the night. The next day they reached Northampton, but it was so dark when they arrived, that after narrowly escaping being overturned, the passengers alighted and walked into the town. The modern stage-coach journeying all night at the same rapid pace as during the day, lighted by four brilliant patent lamps, one each at the hinder and front 'boot,' and one on each side of the driving-box, would have astonished our worthy antiquary. On the 28th they only proceeded as far as Leicester; but on the 29th, to make amends for this slow travelling, they started early and "reached Nottingham in so great time that we hoped to have got to Mansfield, but the coach wanting some repair detained us." From Leicester to Mansfield would have been a journey of forty miles. On the 30th they lodged at Doncaster, and on the 31st Thoresby arrived at York, where he had business. The number of miles travelled on each of the six days was as follows:—1st day, thirty-two miles; second, forty; third, thirty-two; fourth, twenty-six; fifth, thirty-two; and sixth, thirty-seven miles. Before the Edinburgh mail was taken "off the road" the journey from London to York was performed in less than twenty-three hours.

In 1714 Thoresby again visited London, and intending to start from Leeds on Monday by coach, he received on Sunday a message from Wakefield that "the coach could not reach this town" (Leeds). At this period, and even still later, the coaches started only when they had obtained a part of their complement of passengers, and their departure was of course very irregular. Thoresby set out on horseback to meet the coach at Wakefield, on May 3. The passengers dined at Grantham, where Thoresby remarks they "had the annual solemnity (this being the first time the coach passed the road in May) of the coachman and horses being dressed with ribbons and flowers, the town music and young people in couples before us." This 'solemnity' is still observed in many parts of the country, though with bated splendour, and even the omnibuses of London display May-day tokens. On the third day of their journey they were joined by other passengers, "which, though females, were more chargeable in wine and brandy than the former part of the journey, wherein we had neither, but the next day (he ungallantly says) we gave them leave to treat themselves." The practise here alluded to would add rather inconveniently to the costs of the journey. They reached London in four days after leaving Wakefield. In March, 1723, at which time the roads probably were not so good, he made the same journey in five days, and on his return in June in four days. There were now many public vehicles for passengers on the North Road, and on reaching Barnby-Moor on his present journey, there "were so many coaches that some were ill put to it for lodging."

The time occupied in stoppages may be estimated by several of Thoresby's notices. In one case he attended prayers in the parish church at Grantham, and heard the sermon, resuming his journey after he and the rest of the passengers had dined. At another time he left the coach "to seek for fossil shells and formed stones;" and in a journey to York from Leeds, while the horses were probably baiting at Tadcaster (for relays were not frequent), he "visited old Mrs. Morley to inquire for autographs." While in London in 1714, he went to Cambridge by coach, and the journey only occupied one day, but great exertion both of passengers and horses was required for this rapid rate of travelling. Thoresby says:—"After a weary night, rose by *three*, and walked to Bishopgate Street to take coach." Such was the exertion made to get to Cambridge by the evening, that he complains he "had not time" to visit some objects of curiosity on the road.

Influence of Tables-d'Hote on the Continent.—To the prevalence of tables-d'hôte in every town and village of the Continent, must no doubt be ascribed much of that social feeling and easy carriage which characterize the people of almost every country in Europe except our own. Being frequented by persons of all ranks, they lead to an assimilation of manners and of taste, which must be conducive to general refinement; and by an interchange of opinions and a diffusion of intelligence during the two or three hours of daily intercourse, they must contribute to a diffusion of information and a better understanding between all classes.—*Mr. Emerson Tennent's Belgium.*